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PEST REPORT

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WESTERN SPRUCE BUDWORM IN B.C. IN 1986 AND FORECAST FOR 1987

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More than 413 000 ha of mature and immature Douglas-fir forests in four regions (Map) were defoliated by the budworm in 1986. This is nearly double the 1985 area and occurs mainly in the Kamloops Region. To a lesser extent defoliation occurred in the Nelson Region and for the first time since 1981 in the Vancouver Region, but declined in the southern part of the Cariboo Region.

The major expansion occurred in the Kamloops Region, where Douglas-fir on 408 000 ha were defoliated: 7 000 ha (1%) severely; 100 000 ha (25%) moderately - up nearly threefold; and 300 500 ha (74%) lightly - a twofold increase from 1985. The expansion occurred west of Osoyoos on Mt. Kobau, around Falkland, Westwold, Salmon Arm and Chase and to the northern limits of the host range in the North Thompson River near Avola.

Between Anarchist Mountain and Rock Creek in the Nelson Region the area of defoliated Douglas-fir expanded from 60 ha to 3 700 ha. At Johnston Creek east of Anarchist Mountain, pockets of Douglas-fir have been defoliated to varying degrees for about nine successive years.

Light and moderate defoliation of current year's foliage occurred in the Vancouver Region for the first time since 1981, over about 1 250 ha in the Blackwater Creek drainage near D'Arcy.

Populations declined significantly in previously defoliated stands near Clinton in the southern part of the Cariboo Region, because of early larval mortality and late bud development, caused by colder than normal late spring temperatures. This resulted in no visible defoliation this year where Douglas-fir on 29 500 ha had been moderately or severely defoliated in 1985. However, in the eastern part of the Cariboo Region near Mahood Falls and Bowen Lake, half the current year's Douglas-fir needles and some alpine fir in five pockets totalling 180 ha were very lightly defoliated for the first time in recent years.

Parasitism of early and some late instar larvae occurred at 39 of 41 sites mainly in the Kamloops Region, but averaged only 8% (range 0-50%), down from 11% in 1985, and is too low to effectively reduce populations.

To assess the long term impact of defoliation, the number of permanent study plots, some of which are six years old, have been increased to 86.

Egg sampling at 54 locations in four regions to determine the potential larval populations and related defoliation in 1987, indicates severe defoliation at 39 (72%) of the areas, throughout the Kamloops Region and adjacent parts of the Nelson and Cariboo regions (Table). Light or moderate defoliation is forecast mainly near D'Arcy in the Vancouver Region and in isolated areas in the other three regions. Additionally, 10 areas sampled by the B.C. Forest Service (B.C.F.S.) in the Kamloops Region from Vernon to Monte Lake, and 5 areas in the Nelson Region from Rock Creek to Bridesville, forecast defoliation similar to that forecast by CFS-FIDS. Results from other areas in the Kamloops Region, sampled by B.C.F.S., are pending.

Table. Predicted defoliation of Douglas-fir stands by western spruce budworm in British Columbia in 1987.

Region	No. of locations				Range of egg masses/10 m^2 foliage
	Sampled	Predicted defoliation*			
		Light	Moderate	Severe	
Cariboo	5**	3		2	0-639
Kamloops	39	1	5	33	29-880***
Nelson	5	1		4	39-755
Vancouver	4	2	2		15-128
Total	54	7	7	39	0-880

* 1- 50 new egg masses/10 m^2 foliage = Light defoliation
15-150 " " " " = Moderate "
151+ " " " " = Severe "

** Includes one site (Canim Lake) where no defoliation is forecast.

***72-890 at 19 sites in 1985.

Table Location of 1985 and 1986 egg samples and predicted defoliation of Douglas-fir in British Columbia in 1987.

Region/Location	No. egg masses /10 m^2 foliage 1986	1985	Predicted defoliation in 1987	Increase/Decrease
KAMLOOPS				
Lillooet TSA				
Marshall Creek	83	72	Moderate	Increase
Mission Pass	880	392	Severe	"
Cayoosh Creek	258	-	"	"
Watson Bar Creek	149	127	Moderate	"
Fountain Valley	322	186	Severe	"
Botanie Creek	29	-	Light	"
Merritt TSA				
Skeikut Creek	412	-	Severe	Increase
Pimainus Ridge	276	96	"	"
Highland Valley	260	-	"	"
Kamloops TSA				
Scottie Creek	351	890	Severe	Decrease
E. Bonaparte T.R.	776	536	"	Increase
Cache Creek	500	-	"	"
Separating Lake	1 330	359	"	"
Oregon Jack Creek	112	262	Moderate	Decrease
Carabine Creek	604	288	Severe	Increase
Sabiston Creek	766	970	"	Decrease
Indian Gardens	173	890	"	"
Tranquille River	345	-	"	Increase
Paul L. Park	425	186	"	"
Heffley Lake	492	149	"	"
Louis Creek	450	-	"	"
Orchard Lake	135	263	Moderate	Decrease
Duck Meadows	373	-	Severe	Increase
Clearwater TSA				
E. Barriere Lake	166	-	Severe	Increase
W. of Barriere	418	120	"	"
Lemieux L.	274	78	"	"
Burton Cr.	597	-	"	"
Birch Island	518	-	"	"

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Region/Location	No. egg masses /10 m^2 foliage 1986	1985	Predicted defoliation in 1987	Increase/Decrease
Okanagan TSA				
Little Shuswap Lake	441	-	Severe	Increase
Adams River	255	-	"	"
Skwaam Bay	438	-	"	"
Falkland	256	-	"	"
Skimikan	450	-	"	"
White Lake	509	-	"	"
Round Lake	65	-	Moderate	"
Blind Creek	238	-	Severe	"
Blue Lake	333	-	"	"
Mt. Kobau	254	155	"	"
Anarchist Mtn.	300	182	"	"
CARIBOO				
100 Mile TSA				
Big Bar Lake Rd.	19	158	Light	Decrease
Bonaparte River	199	448	Severe	"
Loon Lake	26	27	Light	"
Mahood Lake	639	-	Severe	Increase
Mahood Falls	49	-	Light	"
Canim Lake	0	-	None	-
NELSON				
Boundary TSA				
Anarchist Mtn.	303	-	Severe	Increase
Rock Creek	455	-	"	"
Bridesville	755	-	"	"
Johnstone Creek	442	-	"	"
McKinney Creek	39	-	Light	"
VANCOUVER				
Soo TSA				
Blackwater Cr. South	128	-	Moderate	Increase
Blackwater Cr. North	106	-	"	"
Haylmore Creek	46	-	Light	"
Devine	15	-	"	"

Map. Area of Douglas-fir defoliated by western spruce budworm in British Columbia, 1986.